



1102-98.TXT

SEQUENCE LISTING

<110> Kainoh, Mie
Tanaka, Toshiaki

<120> Chimeric Proteins, their Heterodimer
Complexes, and Platelet Substitutes

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<140> 09/155,514

<141> 1998-11-17

<150> WO PCT/JP98/00370

<151> 1998-01-29

<150> JP 9-15118

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Cys Val Phe Ala Gln Thr Asp Glu Asn Arg Cys Leu Lys Ala Asn Ala	
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Lys Ser Cys Gly Glu Cys Ile Gln Ala Gly Pro Asn Cys Gly Trp Cys	
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Thr Asn Ser Thr Phe Leu Gln Glu Gly Met Pro Thr Ser Ala Arg Cys	
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gat gat tta gaa gcc tta aaa aag aag ggt tgc cct cca gat gac ata	240
Asp Asp Leu Glu Ala Leu Lys Lys Lys Gly Cys Pro Pro Asp Asp Ile	
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Glu Asn Pro Arg Gly Ser Lys Asp Ile Lys Lys Asn Lys Asn Val Thr	
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Asn Arg Ser Lys Gly Thr Ala Glu Lys Leu Lys Pro Glu Asp Ile His	
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cag Gln 370	ttg Leu	atc Ile	att Ile	gat Asp	gca Ala	tac Tyr 375	aat Asn	tcc Ser	ctt Leu	tcc Ser	tca Ser 380	gaa Glu	gtc Val	att Ile	ttg Leu	1152
gaa Glu 385	aac Asn	ggc Gly	aaa Lys	ttg Leu	tca Ser 390	gaa Glu	gga Gly	gta Val	aca Thr	ata Ile 395	agt Ser	tac Tyr	aaa Lys	tct Ser	tac Tyr 400	1200
tgc Cys	aag Lys	aac Asn	ggg Gly	gtg Val 405	aat Asn	gga Gly	aca Thr	ggg Gly	gaa Glu 410	aat Asn	gga Gly	aga Arg	aaa Lys	tgt Cys 415	tcc Ser	1248
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ggc Gly 450	ttt Phe 450	acg Thr	gag Glu	gaa Glu	gta Val	gag Glu 455	gtt Val	att Ile	ctt Leu	cag Gln	tac Tyr 460	atc Ile	tgt Cys	gaa Glu	tgt Cys	1392
gaa Glu 465	tgc Cys	caa Gln	agc Ser	gaa Glu	ggc Gly 470	atc Ile	cct Pro	gaa Glu	agt Ser	ccc Pro 475	aag Lys	tgt Cys	cat His	gaa Glu	gga Gly 480	1440
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ggc Gly 610	cgg Arg 610	ggc Gly	atc Ile	tgc Cys	gag Glu	tgt Cys 615	ggt Gly	gtc Val	tgt Cys	aag Lys	tgt Cys 620	aca Thr	gat Asp	ccg Pro	aag Lys	1872
ttt Phe 625	caa Gln	ggg Gly	caa Gln	acg Thr	tgt Cys 630	gag Glu	atg Met	tgt Cys	cag Gln	acc Thr 635	tgc Cys	ctt Leu	ggt Gly	gtc Val	tgt Cys 640	1920
gct Ala	gag Glu	cat His	aaa Lys	gaa Glu 645	tgt Cys	gtt Val	cag Gln	tgc Cys	aga Arg 650	gcc Ala	ttc Phe	aat Asn	aaa Lys	gga Gly 655	gaa Glu	1968
aag Lys	aaa Lys	gac Asp	aca Thr 660	tgc Cys	aca Thr	cag Gln	gaa Glu	tgt Cys 665	tcc Ser	tat Tyr	ttt Phe	aac Asn	att Ile 670	acc Thr	aag Lys	2016
gta Val	gaa Glu	agt Ser 675	cgg Arg	gac Asp	aaa Lys	tta Leu	ccc Pro 680	cag Gln	ccg Pro	gtc Val	caa Gln	cct Pro 685	gat Asp	cct Pro	gtg Val	2064

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Tyr Ser Val Asn Gly Asn Asn Glu Val Met Val His Val Val Glu Asn	
705 710 715 720	
cca gag tgt ccc act ggt cca gag gat ccc gag ctgctggaag caggctcagc	2213
Pro Glu Cys Pro Thr Gly Pro Glu Asp Pro Glu	
725 730	
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Glu Pro Lys Ser Cys Asp	
735	
aaa act cac aca tgc cca ccg tgc cca ggtaagccag cccaggcctc	2615
Lys Thr His Thr Cys Pro Pro Cys Pro	
740 745	
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agccgggtgc tgacacgtcc acctccatct ctctctca gca cct gaa ctc ctg ggg	2731
Ala Pro Glu Leu Leu Gly	
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gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag gac acc ctc atg	2779
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met	
755 760 765	
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Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His	
770 775 780	
gaa gac cct gag gtc aag ttc aac tgg tac gtg gac ggc gtg gag gtg	2875
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785 790 795 800	
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His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr	
805 810 815	
cgg gtg gtc agc gtc ctc acc gtc ctg cac cag gac tgg ctg aat ggc	2971
Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly	
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aag gag tac aag tgc aag gtc tcc aac aaa gcc ctc cca gcc ccc atc	3019
Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile	
835 840 845	
gag aaa acc atc tcc aaa gcc aaa ggtgggaccc gtgggggtgcg agggccacat	3073
Glu Lys Thr Ile Ser Lys Ala Lys	
850 855	
ggacagaggc cggctcggcc caccctctgc cctgagagtg accgctgtac caacctctgt	3133
cctaca ggg cag ccc cga gaa cca cag gtg tac acc ctg ccc cca tcc	3181
Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser	
860 865 870	

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Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
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ggc ttc tat ccc agc gac atc gcc gtg gag tgg gag agc aat ggg cag 3277
Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
890 895 900

ccg gag aac aac tac aag acc acg cct ccc gtg ctg gat tcc gac ggc 3325
Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly
905 910 915

tcc ttc ttc ctc tac agc aag ctc acc gtg gac aag agc agg tgg cag 3373
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920 925 930

cag ggg aac gtc ttc tca tgc tcc gtg atg cat gag gct ctg cac aac 3421
Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
935 940 945 950

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cag Gln	ggc Gly	act Thr 595	atc Ile	cgc Arg	aca Thr	aag Lys	tat Tyr 600	tcc Ser	cag Gln	aaa Lys	atc Ile	ttg Leu 605	gga Gly	tcc Ser	gat Asp	1824
gga Gly	gcc Ala 610	ttt Phe	agg Arg	agc Ser	cat His	ctc Leu 615	cag Gln	tac Tyr	ttt Phe	ggg Gly	agg Arg 620	tcc Ser	ttg Leu	gat Asp	ggc Gly	1872
tat Tyr 625	gga Gly	gat Asp	tta Leu	aat Asn	ggg Gly 630	gat Asp	tcc Ser	atc Ile	acc Thr	gat Asp 635	gtg Val	tct Ser	att Ile	ggt Gly	gcc Ala 640	1920
ttt Phe	gga Gly	caa Gln	gtg Val	gtt Val 645	caa Gln	ctc Leu	tgg Trp	tca Ser	caa Gln 650	agt Ser	att Ile	gct Ala	gat Asp	gta Val 655	gct Ala	1968
ata Ile	gaa Glu	gct Ala	tca Ser 660	ttc Phe	aca Thr	cca Pro	gaa Glu	aaa Lys 665	atc Ile	act Thr	ttg Leu	gtc Val	aac Asn 670	aag Lys	aat Asn	2016
gct Ala	cag Gln	ata Ile 675	att Ile	ctc Leu	aaa Lys	ctc Leu	tgc Cys 680	ttc Phe	agt Ser	gca Ala	aag Lys	ttc Phe 685	aga Arg	cct Pro	act Thr	2064
aag Lys	caa Gln 690	aac Asn	aat Asn	caa Gln	gtg Val	gcc Ala 695	att Ile	gta Val	tat Tyr	aac Asn	atc Ile 700	aca Thr	ctt Leu	gat Asp	gca Ala	2112
gat Asp 705	gga Gly	ttt Phe	tca Ser	tcc Ser	aga Arg 710	gta Val	acc Thr	tcc Ser	agg Arg	ggg Gly 715	tta Leu	ttt Phe	aaa Lys	gaa Glu	aac Asn 720	2160
aat Asn	gaa Glu	agg Arg	tgc Cys	ctg Leu 725	cag Gln	aag Lys	aat Asn	atg Met	gta Val 730	gta Val	aat Asn	caa Gln	gca Ala	cag Gln 735	agt Ser	2208
tgc Cys	ccc Pro	gag Glu	cac His 740	atc Ile	att Ile	tat Tyr	ata Ile	cag Gln 745	gag Glu	ccc Pro	tct Ser	gat Asp	gtt Val 750	gtc Val	aac Asn	2256
tct Ser	ttg Leu	gat Asp 755	ttg Leu	cgt Arg	gtg Val	gac Asp	atc Ile 760	agt Ser	ctg Leu	gaa Glu	aac Asn	cct Pro 765	ggc Gly	act Thr	agc Ser	2304
cct Pro	gcc Ala 770	ctt Leu	gaa Glu	gcc Ala	tat Tyr	tct Ser 775	gag Glu	act Thr	gcc Ala	aag Lys	gtc Val 780	ttc Phe	agt Ser	att Ile	cct Pro	2352
ttc Phe 785	cac His	aaa Lys	gac Asp	tgt Cys	ggt Gly 790	gag Glu	gat Asp	gga Gly	ctt Leu	tgc Cys 795	att Ile	tct Ser	gat Asp	cta Leu	gtc Val 800	2400
cta Leu	gat Asp	gtc Val	cga Arg	caa Gln 805	ata Ile	cca Pro	gct Ala	gct Ala	caa Gln 810	gaa Glu	caa Gln	ccc Pro	ttt Phe	att Ile 815	gtc Val	2448
agc Ser	aac Asn	caa Gln 820	aac Asn	aaa Lys	agg Arg	tta Leu	aca Thr	ttt Phe 825	tca Ser	gta Val	aca Thr	ctg Leu	aaa Lys 830	aat Asn	aaa Lys	2496

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agg	gaa	agt	gca	tac	aac	act	gga	att	ggt	ggt	gat	ttt	tca	gaa	aac	2544
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		835					840					845				
ttg	ttt	ttt	gca	tca	ttc	tcc	cta	ccg	ggt	gat	ggg	aca	gaa	gta	aca	2592
Leu	Phe	Phe	Ala	Ser	Phe	Ser	Leu	Pro	Val	Asp	Gly	Thr	Glu	Val	Thr	
	850					855					860					
tgc	cag	gtg	gct	gca	tct	cag	aag	tct	ggt	gcc	tgc	gat	gta	ggc	tac	2640
Cys	Gln	Val	Ala	Ala	Ser	Gln	Lys	Ser	Val	Ala	Cys	Asp	Val	Gly	Tyr	
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cct	gct	tta	aag	aga	gaa	caa	cag	gtg	act	ttt	act	att	aac	ttt	gac	2688
Pro	Ala	Leu	Lys	Arg	Glu	Gln	Gln	Val	Thr	Phe	Thr	Ile	Asn	Phe	Asp	
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ttc	aat	ctt	caa	aac	ctt	cag	aat	cag	gcg	tct	ctc	agt	ttc	caa	gcc	2736
Phe	Asn	Leu	Gln	Asn	Leu	Gln	Asn	Gln	Ala	Ser	Leu	Ser	Phe	Gln	Ala	
			900					905					910			
tta	agt	gaa	agc	caa	gaa	gaa	aac	aag	gct	gat	aat	ttg	gtc	aac	ctc	2784
Leu	Ser	Glu	Ser	Gln	Glu	Glu	Asn	Lys	Ala	Asp	Asn	Leu	Val	Asn	Leu	
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Lys	Ile	Pro	Leu	Leu	Tyr	Asp	Ala	Glu	Ile	His	Leu	Thr	Arg	Ser	Thr	
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aac	ata	aat	ttt	tat	gaa	atc	tct	tcg	gat	ggg	aat	ggt	cct	tca	atc	2880
Asn	Ile	Asn	Phe	Tyr	Glu	Ile	Ser	Ser	Asp	Gly	Asn	Val	Pro	Ser	Ile	
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gtg	cac	agt	ttt	gaa	gat	ggt	ggt	cca	aaa	ttc	atc	ttc	tcc	ctg	aag	2928
Val	His	Ser	Phe	Glu	Asp	Val	Gly	Pro	Lys	Phe	Ile	Phe	Ser	Leu	Lys	
				965					970					975		
gta	aca	aca	gga	agt	ggt	cca	gta	agc	atg	gca	act	gta	atc	atc	cac	2976
Val	Thr	Thr	Gly	Ser	Val	Pro	Val	Ser	Met	Ala	Thr	Val	Ile	Ile	His	
			980					985					990			
atc	cct	cag	tat	acc	aaa	gaa	aag	aac	cca	ctg	atg	tac	cta	act	ggg	3024
Ile	Pro	Gln	Tyr	Thr	Lys	Glu	Lys	Asn	Pro	Leu	Met	Tyr	Leu	Thr	Gly	
		995					1000					1005				
gtg	caa	aca	gac	aag	gct	ggt	gac	atc	agt	tgt	aat	gca	gat	atc	aat	3072
Val	Gln	Thr	Asp	Lys	Ala	Gly	Asp	Ile	Ser	Cys	Asn	Ala	Asp	Ile	Asn	
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cca	ctg	aaa	ata	gga	caa	aca	tct	tct	tct	gta	tct	ttc	aaa	agt	gaa	3120
Pro	Leu	Lys	Ile	Gly	Gln	Thr	Ser	Ser	Ser	Val	Ser	Phe	Lys	Ser	Glu	
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aat	ttc	agg	cac	acc	aaa	gaa	ttg	aac	tgc	aga	act	gct	tcc	tgt	agt	3168
Asn	Phe	Arg	His	Thr	Lys	Glu	Leu	Asn	Cys	Arg	Thr	Ala	Ser	Cys	Ser	
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			1060					1065					1070			
gtt	aat	gtg	act	acc	aga	att	tgg	aac	ggg	act	ttc	gca	tca	tca	acg	3264
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ttc cag aca gta cag cta acg gca gct gca gaa atc aac acc tat aac	3312		
Phe Gln Thr Val Gln Leu Thr Ala Ala Glu Ile Asn Thr Tyr Asn			
1090	1095	1100	
cct gag ata tat gtg att gaa gat aac act gtt acg att ccc ctg atg	3360		
Pro Glu Ile Tyr Val Ile Glu Asp Asn Thr Val Thr Ile Pro Leu Met			
1105	1110	1115	1120
ata atg aaa cct gat gag aaa gcc gaa gta cca aca gat ccc gag	3405		
Ile Met Lys Pro Asp Glu Lys Ala Glu Val Pro Thr Asp Pro Glu			
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ctgctggaag caggctcagc gctcctgcct ggacgcatcc cggctatgca gccccagtcc	3465		
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cctaaccag gccctgcaca caaaggggca ggtgctgggc tcagacctgc caagagccat	3645		
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cagctcggac accttctctc ctcccagatt ccagtaactc ccaatcttct ctctgca gag	3765		
			Glu
ccc aaa tct tgt gac aaa act cac aca tgc cca ccg tgc cca	3807		
Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro			
1140	1145	1150	
ggtaagccag cccaggcctc gccctccagc tcaaggcggg acagggtgcc tagagtagcc	3867		
tgcattccagg gacaggcccc agccgggtgc tgacacgtcc acctccatct ctctctca	3925		
gca cct gaa ctc ctg ggg gga ccg tca gtc ttc ctc ttc ccc cca aaa	3973		
Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys			
1155	1160	1165	
ccc aag gac acc ctc atg atc tcc cgg acc cct gag gtc aca tgc gtg	4021		
Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val			
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Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr			
1185	1190	1195	
gtg gac ggc gtg gag gtg cat aat gcc aag aca aag ccg cgg gag gag	4117		
Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu			
1200	1205	1210	
cag tac aac agc acg tac cgg gtg gtc agc gtc ctc acc gtc ctg cac	4165		
Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His			
1215	1220	1225	1230
cag gac tgg ctg aat ggc aag gag tac aag tgc aag gtc tcc aac aaa	4213		
Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys			
1235	1240	1245	
gcc ctc cca gcc ccc atc gag aaa acc atc tcc aaa gcc aaa	4255		
Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys			
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cctgagagtg accgctgtac caacctctgt cctaca ggg cag ccc cga gaa cca	4369		
			Gly Gln Pro Arg Glu Pro
			1265
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Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln		
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cct	ccc	gtg	ctg	gat	tcc	gac	ggc	tcc	ttc	ttc	ctc	tac	agc	aag	ctc	4561	
Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu		
1315					1320				1325						1330		
acc	gtg	gac	aag	agc	agg	tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	tcc	4609	
Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser		
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Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser		
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Gly Val Pro Thr Gly Arg Pro Tyr Asn Val Asp Thr Glu Ser Ala Leu
 35 40 45
 Leu Tyr Gln Gly Pro His Asn Thr Leu Phe Gly Tyr Ser Val Val Leu
 50 55 60
 His Ser His Gly Ala Asn Arg Trp Leu Leu Val Gly Ala Pro Thr Ala
 65 70 75 80
 Asn Trp Leu Ala Asn Ala Ser Val Ile Asn Pro Gly Ala Ile Tyr Arg
 85 90 95
 Cys Arg Ile Gly Lys Asn Pro Gly Gln Thr Cys Glu Gln Leu Gln Leu
 100 105 110
 Gly Ser Pro Asn Gly Glu Pro Cys Gly Lys Thr Cys Leu Glu Glu Arg
 115 120 125
 Asp Asn Gln Trp Leu Gly Val Thr Leu Ser Arg Gln Pro Gly Glu Asn
 130 135 140
 Gly Ser Ile Val Thr Cys Gly His Arg Trp Lys Asn Ile Phe Tyr Ile
 145 150 155 160
 Lys Asn Glu Asn Lys Leu Pro Thr Gly Gly Cys Tyr Gly Val Pro Pro
 165 170 175
 Asp Leu Arg Thr Glu Leu Ser Lys Arg Ile Ala Pro Cys Tyr Gln Asp
 180 185 190
 Tyr Val Lys Lys Phe Gly Glu Asn Phe Ala Ser Cys Gln Ala Gly Ile
 195 200 205
 Ser Ser Phe Tyr Thr Lys Asp Leu Ile Val Met Gly Ala Pro Gly Ser
 210 215 220
 Ser Tyr Trp Thr Gly Ser Leu Phe Val Tyr Asn Ile Thr Thr Asn Lys
 225 230 235 240
 Tyr Lys Ala Phe Leu Asp Lys Gln Asn Gln Val Lys Phe Gly Ser Tyr
 245 250 255
 Leu Gly Tyr Ser Val Gly Ala Gly His Phe Arg Ser Gln His Thr Thr
 260 265 270
 Glu Val Val Gly Gly Ala Pro Gln His Glu Gln Ile Gly Lys Ala Tyr
 275 280 285
 Ile Phe Ser Ile Asp Glu Lys Tyr Phe Gly Ala Ser Val Cys Ala Val Asp
 290 295 300 305 310 315 320
 Gly Lys Lys Leu Gly Ser Tyr Phe Gly Ala Ser Val Cys Ala Val Asp
 305 310 315 320
 Leu Asn Ala Asp Gly Phe Ser Asp Leu Leu Val Gly Ala Pro Met Gln
 325 330 335
 Ser Thr Ile Arg Glu Glu Gly Arg Val Phe Val Tyr Ile Asn Ser Gly
 340 345 350
 Ser Gly Ala Val Met Asn Ala Met Glu Thr Asn Leu Val Gly Ser Asp
 355 360 365
 Lys Tyr Ala Ala Arg Phe Gly Glu Ser Ile Val Asn Leu Gly Asp Ile
 370 375 380
 Asp Asn Asp Gly Phe Glu Asp Val Ala Ile Gly Ala Pro Gln Glu Asp
 385 390 395 400
 Asp Leu Gln Gly Ala Ile Tyr Ile Tyr Asn Gly Arg Ala Asp Gly Ile
 405 410 415
 Ser Ser Thr Phe Ser Gln Arg Ile Glu Gly Leu Gln Ile Ser Lys Ser
 420 425 430
 Leu Ser Met Phe Gly Gln Ser Ile Ser Gly Gln Ile Asp Ala Asp Asn
 435 440 445
 Asn Gly Tyr Val Asp Val Ala Val Gly Ala Phe Arg Ser Asp Ser Ala
 450 455 460
 Val Leu Leu Arg Thr Arg Pro Val Val Ile Val Asp Ala Ser Leu Ser
 465 470 475 480
 His Pro Glu Ser Val Asn Arg Thr Lys Phe Asp Cys Val Glu Asn Gly
 485 490 495
 Trp Pro Ser Val Cys Ile Asp Leu Thr Leu Cys Phe Ser Tyr Lys Gly
 500 505 510
 Lys Glu Val Pro Gly Tyr Ile Val Leu Phe Tyr Asn Met Ser Leu Asp
 515 520 525
 Val Asn Arg Lys Ala Glu Ser Pro Pro Arg Phe Tyr Phe Ser Ser Asn

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545	Ala	Asn	Cys	Arg	Thr	His	550	Gln	Ala	Phe	Met	Arg	555	Lys	Asp	Val	Arg	Asp
	Ile	Leu	Thr	Pro	Ile	Gln	565	Ile	Glu	Ala	Ala	Tyr	570	His	Leu	Gly	Pro	His
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	Leu	Gln	Gln	Lys	Lys	Glu	595	Lys	Asp	Ile	Met	Lys	600	Lys	Thr	Ile	Asn	Phe
	Ala	Arg	Phe	Cys	Ala	His	610	Glu	Asn	Cys	Ser	Ala	615	Asp	Leu	Gln	Val	Ser
625	Ala	Lys	Ile	Gly	Phe	Leu	630	Lys	Pro	His	Glu	635	Asn	Lys	Thr	Tyr	Leu	Ala
	Val	Gly	Ser	Met	Lys	Thr	645	Leu	Met	Leu	Asn	Val	650	Ser	Leu	Phe	Asn	Ala
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	Leu	Tyr	Phe	Ile	Lys	Ile	675	Leu	Glu	Leu	Glu	Glu	680	Lys	Gln	Ile	Asn	Cys
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705	Tyr	Ile	Tyr	Val	Asp	His	710	Leu	Ser	Arg	Ile	Asp	715	Ile	Ser	Phe	Leu	Leu
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	His	Ala	Thr	Cys	Glu	Asn	740	Glu	Glu	Glu	Met	Asp	745	Asn	Leu	Lys	His	Ser
	Arg	Val	Thr	Val	Ala	Ile	755	Leu	Lys	Tyr	Glu	Val	760	Lys	Leu	Thr	Val	
	His	Gly	Phe	Val	Asn	Pro	775	Thr	Ser	Phe	Val	Tyr	780	Gly	Ser	Asn	Asp	Glu
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	Val	Ile	Asn	Thr	Gly	Asn	805	Ser	Met	Ala	Pro	Asn	810	Val	Ser	Val	Glu	Ile
	Met	Val	Pro	Asn	Ser	Phe	820	Ser	Pro	Gln	Thr	Asp	825	Lys	Leu	Phe	Asn	Ile
	Leu	Asp	Val	Gln	Thr	Thr	835	Thr	Gly	Glu	Cys	His	840	Phe	Glu	Asn	Tyr	Gln
	Arg	Val	Cys	Ala	Leu	Glu	850	Gln	Gln	Lys	Ser	Ala	855	Met	Gln	Thr	Leu	Lys
865	Gly	Ile	Val	Arg	Phe	Leu	870	Ser	Lys	Thr	Asp	Lys	875	Arg	Leu	Leu	Tyr	Cys
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	Met	Glu	Ser	Gly	Lys	Glu	900	Ala	Ser	Val	His	Ile	905	Gln	Leu	Glu	Gly	Arg
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945	Lys	Asp	Glu	Asn	Val	Ala	950	His	Val	Leu	Leu	Glu	955	Gly	Leu	His	His	Gln
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	Lys	Thr	His	Thr	Cys	Pro	980	Pro	Cys	Pro	Ala	Pro	985	Glu	Leu	Leu	Gly	Gly
	Pro	Ser	Val	Phe	Leu	Phe	995	Pro	Pro	Lys	Pro	Lys	1000	Asp	Thr	Leu	Met	Ile
	Ser	Arg	Thr	Pro	Glu	Val	1010	Thr	Cys	Val	Val	Val	1015	Asp	Val	Ser	His	Glu
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 Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
 1060 1065 1070
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 1075 1080 1085
 Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
 1090 1095 1100
 Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
 1105 1110 1115 1120
 Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu
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 Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
 1140 1145 1150
 Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
 1155 1160 1165
 Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
 1170 1175 1180
 Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
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 Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
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 Gly Lys

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<212> PRT

<213> Artificial Sequence

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 Lys Ser Cys Gly Glu Cys Ile Gln Ala Gly Pro Asn Cys Gly Trp Cys
 35 40 45
 Thr Asn Ser Thr Phe Leu Gln Glu Gly Met Pro Thr Ser Ala Arg Cys
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 Asp Asp Leu Glu Ala Leu Lys Lys Lys Gly Cys Pro Pro Asp Asp Ile
 65 70 75 80
 Glu Asn Pro Arg Gly Ser Lys Asp Ile Lys Lys Asn Lys Asn Val Thr
 85 90 95
 Asn Arg Ser Lys Gly Thr Ala Glu Lys Leu Lys Pro Glu Asp Ile His
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 Gln Ile Gln Pro Gln Gln Leu Val Leu Arg Leu Arg Ser Gly Glu Pro
 115 120 125
 Gln Thr Phe Thr Leu Lys Phe Lys Arg Ala Glu Asp Tyr Pro Ile Asp
 130 135 140
 Leu Tyr Tyr Leu Met Asp Leu Ser Tyr Ser Met Lys Asp Asp Leu Glu
 145 150 155 160
 Asn Val Lys Ser Leu Gly Thr Asp Leu Met Asn Glu Met Arg Arg Ile
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 Thr Ser Asp Phe Arg Ile Gly Phe Gly Ser Phe Val Glu Lys Thr Val
 180 185 190
 Met Pro Tyr Ile Ser Thr Thr Pro Ala Lys Leu Arg Asn Pro Cys Thr
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 Ser Glu Gln Asn Cys Thr Thr Pro Phe Ser Tyr Lys Asn Val Leu Ser
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Leu 225	Thr 225	Asn 225	Lys 225	Gly 225	Glu 230	Val 230	Phe 230	Asn 230	Glu 235	Leu 235	Val 235	Gly 235	Lys 235	Gln 235	Arg 240
Ile 245	Ser 245	Gly 245	Asn 245	Leu 245	Asp 245	Ser 245	Pro 245	Glu 245	Gly 250	Gly 250	Phe 250	Asp 250	Ala 255	Ile 255	Met 255
Gln 260	Val 260	Ala 260	Val 260	Cys 260	Gly 260	Ser 260	Leu 265	Ile 265	Gly 265	Trp 265	Arg 265	Asn 270	Val 270	Thr 270	Arg 270
Leu 275	Leu 275	Val 275	Phe 275	Ser 275	Thr 275	Asp 275	Ala 280	Gly 280	Phe 280	His 280	Phe 285	Ala 285	Gly 285	Asp 285	Gly 285
Lys 290	Leu 290	Gly 290	Gly 290	Ile 290	Val 290	Leu 295	Pro 295	Asn 295	Asp 295	Gly 295	Gln 300	Cys 300	His 300	Leu 300	Glu 300
Asn 305	Asn 305	Met 305	Tyr 305	Thr 305	Met 310	Ser 310	His 310	Tyr 310	Tyr 315	Asp 315	Tyr 315	Pro 315	Ser 315	Ile 315	Ala 320
His 325	Leu 325	Val 325	Gln 325	Lys 325	Leu 325	Ser 325	Glu 325	Asn 330	Asn 330	Ile 330	Gln 330	Thr 330	Ile 335	Phe 335	Ala 335
Val 340	Thr 340	Glu 340	Glu 340	Phe 340	Gln 340	Pro 340	Val 345	Tyr 345	Lys 345	Glu 345	Leu 345	Lys 345	Asn 350	Leu 350	Ile 350
Pro 355	Lys 355	Ser 355	Ala 355	Val 355	Gly 355	Thr 355	Leu 360	Ser 360	Ala 360	Asn 360	Ser 365	Ser 365	Asn 365	Val 365	Ile 365
Gln 370	Leu 370	Ile 370	Ile 370	Asp 370	Ala 370	Tyr 375	Asn 375	Ser 375	Leu 375	Ser 375	Ser 380	Glu 380	Val 380	Ile 380	Leu 380
Glu 385	Asn 385	Gly 385	Lys 385	Leu 385	Ser 390	Glu 390	Gly 390	Val 390	Thr 395	Ile 395	Ser 395	Tyr 395	Lys 395	Ser 395	Tyr 400
Cys 405	Lys 405	Asn 405	Gly 405	Val 405	Asn 405	Gly 405	Thr 405	Gly 410	Glu 410	Asn 410	Gly 410	Arg 410	Lys 415	Cys 415	Ser 415
Asn 420	Ile 420	Ser 420	Ile 420	Gly 420	Asp 420	Glu 420	Val 425	Gln 425	Phe 425	Glu 425	Ile 425	Ser 430	Ile 430	Thr 430	Ser 430
Asn 435	Lys 435	Cys 435	Pro 435	Lys 435	Lys 435	Asp 440	Ser 440	Asp 440	Ser 440	Phe 440	Lys 445	Ile 445	Arg 445	Pro 445	Leu 445
Gly 450	Phe 450	Thr 450	Glu 450	Glu 450	Val 455	Glu 455	Val 455	Ile 455	Leu 455	Gln 455	Tyr 460	Ile 460	Cys 460	Glu 460	Cys 460
Glu 465	Cys 465	Gln 465	Ser 465	Glu 465	Gly 470	Ile 470	Pro 470	Glu 470	Ser 475	Pro 475	Lys 475	Cys 475	His 475	Glu 475	Gly 480
Asn 485	Gly 485	Thr 485	Phe 485	Glu 485	Cys 485	Gly 485	Ala 485	Cys 485	Arg 490	Cys 490	Asn 490	Glu 490	Gly 495	Arg 495	Val 495
Gly 500	Arg 500	His 500	Cys 500	Glu 500	Cys 500	Ser 500	Thr 505	Asp 505	Glu 505	Val 505	Asn 505	Ser 510	Glu 510	Asp 510	Met 510
Asp 515	Ala 515	Tyr 515	Cys 515	Arg 515	Lys 515	Glu 515	Asn 520	Ser 520	Ser 520	Glu 520	Ile 520	Cys 525	Ser 525	Asn 525	Asn 525
Gly 530	Glu 530	Cys 530	Val 530	Cys 530	Gly 535	Gln 535	Cys 535	Val 535	Cys 535	Arg 535	Lys 540	Arg 540	Asp 540	Asn 540	Thr 540
Asn 545	Glu 545	Ile 545	Tyr 545	Ser 545	Gly 550	Lys 550	Phe 550	Cys 550	Glu 555	Cys 555	Asp 555	Asn 555	Phe 555	Asn 555	Cys 560
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Phe 625	Gln 625	Gly 625	Gln 625	Thr 625	Cys 630	Glu 630	Met 630	Cys 630	Gln 635	Thr 635	Cys 635	Leu 635	Gly 635	Val 635	Cys 640
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Ser 690	His 690	Cys 690	Lys 690	Glu 690	Lys 690	Asp 695	Val 695	Asp 695	Asp 695	Cys 695	Trp 695	Phe 695	Tyr 695	Phe 695	Thr 695
Tyr 705	Ser 705	Val 705	Asn 705	Gly 705	Asn 710	Asn 710	Glu 710	Val 710	Met 715	Val 715	His 715	Val 715	Val 715	Glu 715	Asn 720
Pro 725	Glu 725	Cys 725	Pro 725	Thr 725	Gly 725	Pro 725	Glu 725	Asp 725	Pro 725	Glu 725	Glu 725	Pro 725	Lys 725	Ser 725	Cys 725

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Gly	Pro	Ser	Val	740	Phe	Leu	Phe	Pro	Pro	745	Lys	Pro	Lys	Asp	Thr	750	Leu	Met
Ile	Ser	Arg	Thr	755	Pro	Glu	Val	Thr	Cys	760	Val	Val	Val	Asp	Val	765	Ser	His
Glu	Asp	Pro	Glu	770	Val	Lys	Phe	Asn	Trp	775	Val	Val	Asp	Gly	Val	780	Glu	Val
785	His	Asn	Ala	Lys	790	Thr	Lys	Pro	Arg	795	Glu	Gln	Tyr	Asn	Ser	800	Thr	Tyr
Arg	Val	Val	Ser	805	Val	Leu	Thr	Val	Leu	810	His	Gln	Asp	Trp	Leu	815	Asn	Gly
Lys	Glu	Tyr	Lys	820	Cys	Lys	Val	Ser	Asn	825	Lys	Ala	Leu	Pro	Ala	830	Pro	Ile
Glu	Lys	Thr	Ile	835	Ser	Lys	Ala	Lys	Gly	840	Gln	Pro	Arg	Glu	Pro	845	Gln	Val
Tyr	Thr	Leu	Pro	850	Pro	Ser	Arg	Asp	Glu	855	Leu	Thr	Lys	Asn	Gln	860	Val	Ser
865	Leu	Thr	Cys	870	Val	Lys	Gly	Phe	Tyr	875	Pro	Ser	Asp	Ile	Ala	880	Val	Glu
Trp	Glu	Ser	Asn	885	Gly	Gln	Pro	Glu	Asn	890	Asn	Tyr	Lys	Thr	Thr	895	Pro	Pro
Val	Leu	Asp	Ser	900	Asp	Gly	Ser	Phe	Phe	905	Leu	Tyr	Ser	Lys	Leu	910	Thr	Val
Asp	Lys	Ser	Arg	915	Trp	Gln	Gln	Gly	Asn	920	Val	Phe	Ser	Cys	Ser	925	Val	Met
His	Glu	Ala	Leu	930	His	Asn	His	Tyr	Thr	935	Gln	Lys	Ser	Leu	Ser	940	Leu	Ser
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	Gly	Leu	Pro	Glu	Ala	Lys	Ile	Phe	Ser	20	Gly	Pro	Ser	Ser	25
	Gly	Tyr	Ala	Val	Gln	Gln	Phe	Ile	Asn	30	Pro	Lys	Gly	Asn	35
	Val	Gly	Ser	Pro	Trp	Ser	Gly	Phe	Pro	40	Glu	Asn	Arg	Met	45
65	Tyr	Lys	Cys	Pro	Val	Asp	Leu	Ser	Thr	50	Ala	Thr	Cys	Glu	55
	Leu	Gln	Thr	Ser	Thr	Ser	Ile	Pro	Asn	60	Val	Thr	Glu	Met	65
	Met	Ser	Leu	Gly	Leu	Ile	Leu	Thr	Arg	70	Asn	Met	Gly	Thr	75
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145	Thr	Thr	Gly	Val	Cys	Ser	Asp	Ile	Ser	90	Pro	Asp	Phe	Gln	95
Ser	Phe	Ser	Pro	Ala	Thr	Gln	Pro	Cys	Pro	100	Ser	Leu	Ile	Asp	105

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Thr	Gln	Val	Gly	195	Leu	Ile	Gln	Tyr	Ala	200	Asn	Asn	Pro	Arg	Val	Val	Phe	
Asn	Leu	Asn	Thr	210	Tyr	Lys	Thr	Lys	Glu	215	Glu	Met	Ile	Val	Ala	Thr	Ser	
225	Gln	Thr	Ser	230	Gln	Tyr	Gly	Gly	Asp	235	Leu	Thr	Asn	Thr	Phe	Gly	Ala	Ile
Gln	Tyr	Ala	Arg	245	Lys	Tyr	Ala	Tyr	Ser	250	Ala	Ala	Ser	Gly	Gly	Arg	Arg	
Ser	Ala	Thr	Lys	260	Val	Met	Val	Val	Val	265	Thr	Asp	Gly	Glu	Ser	His	Asp	
Gly	Ser	Met	Leu	275	Lys	Ala	Val	Ile	Asp	280	Gln	Cys	Asn	His	Asp	Asn	Ile	
Leu	Arg	Phe	Gly	290	Ile	Ala	Val	Leu	Gly	295	Tyr	Leu	Asn	Arg	Asn	Ala	Leu	
305	Asp	Thr	Lys	310	Asn	Ile	Lys	Glu	Ile	315	Lys	Ala	Ile	Ala	Ser	Ile	Pro	
Thr	Glu	Arg	Tyr	325	Phe	Phe	Asn	Val	Ser	330	Asp	Glu	Ala	Ala	Leu	Leu	Glu	
Lys	Ala	Gly	Thr	340	Leu	Gly	Glu	Gln	Ile	345	Phe	Ser	Ile	Glu	Gly	Thr	Val	
Gln	Gly	Gly	Asp	355	Asn	Phe	Gln	Met	Glu	360	Met	Ser	Gln	Val	Gly	Phe	Ser	
Ala	Asp	Tyr	Ser	370	Ser	Gln	Asn	Asp	Ile	375	Leu	Met	Leu	Gly	Ala	Val	Gly	
385	Ala	Phe	Gly	390	Ser	Gly	Thr	Ile	Val	395	Gln	Lys	Thr	Ser	His	Gly	His	
Leu	Ile	Phe	Pro	405	Lys	Gln	Ala	Phe	Asp	410	Gln	Ile	Leu	Gln	Asp	Arg	Asn	
His	Ser	Ser	Tyr	420	Leu	Gly	Tyr	Ser	Val	425	Ala	Ala	Ile	Ser	Thr	Gly	Glu	
Ser	Thr	His	Phe	435	Val	Ala	Gly	Ala	Pro	440	Arg	Ala	Asn	Tyr	Thr	Gly	Gln	
Ile	Val	Leu	Tyr	450	Ser	Val	Asn	Glu	Asn	455	Gly	Asn	Ile	Thr	Val	Ile	Gln	
465	Ala	His	Arg	470	Gly	Asp	Gln	Ile	Gly	475	Ser	Tyr	Phe	Gly	Ser	Val	Leu	Cys
Ser	Val	Asp	Val	485	Asp	Lys	Asp	Thr	Ile	490	Thr	Asp	Val	Leu	Leu	Val	Gly	
Ala	Pro	Met	Tyr	500	Met	Ser	Asp	Leu	Lys	505	Lys	Glu	Glu	Gly	Arg	Val	Tyr	
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Gln	Gly	Thr	Ile	580	Arg	Thr	Lys	Tyr	Ser	585	Gln	Lys	Ile	Leu	Gly	Ser	Asp	
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Tyr	Gly	Asp	Leu	610	Asn	Gly	Asp	Ser	Ile	615	Thr	Asp	Val	Ser	Ile	Gly	Ala	
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	690					695					700				
Asp	Gly	Phe	Ser	Ser	Arg	Val	Thr	Ser	Arg	Gly	Leu	Phe	Lys	Glu	Asn
705					710					715					720
Asn	Glu	Arg	Cys	Leu	Gln	Lys	Asn	Met	Val	Val	Asn	Gln	Ala	Gln	Ser
				725					730					735	
Cys	Pro	Glu	His	Ile	Ile	Tyr	Ile	Gln	Glu	Pro	Ser	Asp	Val	Val	Asn
			740					745					750		
Ser	Leu	Asp	Leu	Arg	Val	Asp	Ile	Ser	Leu	Glu	Asn	Pro	Gly	Thr	Ser
		755					760					765			
Pro	Ala	Leu	Glu	Ala	Tyr	Ser	Glu	Thr	Ala	Lys	Val	Phe	Ser	Ile	Pro
	770					775					780				
Phe	His	Lys	Asp	Cys	Gly	Glu	Asp	Gly	Leu	Cys	Ile	Ser	Asp	Leu	Val
785					790					795					800
Leu	Asp	Val	Arg	Gln	Ile	Pro	Ala	Ala	Gln	Glu	Gln	Pro	Phe	Ile	Val
				805					810					815	
Ser	Asn	Gln	Asn	Lys	Arg	Leu	Thr	Phe	Ser	Val	Thr	Leu	Lys	Asn	Lys
			820					825					830		
Arg	Glu	Ser	Ala	Tyr	Asn	Thr	Gly	Ile	Val	Val	Asp	Phe	Ser	Glu	Asn
		835					840					845			
Leu	Phe	Phe	Ala	Ser	Phe	Ser	Leu	Pro	Val	Asp	Gly	Thr	Glu	Val	Thr
	850					855					860				
Cys	Gln	Val	Ala	Ala	Ser	Gln	Lys	Ser	Val	Ala	Cys	Asp	Val	Gly	Tyr
865					870					875					880
Pro	Ala	Leu	Lys	Arg	Glu	Gln	Gln	Val	Thr	Phe	Thr	Ile	Asn	Phe	Asp
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Phe	Asn	Leu	Gln	Asn	Leu	Gln	Asn	Gln	Ala	Ser	Leu	Ser	Phe	Gln	Ala
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		915					920					925			
Lys	Ile	Pro	Leu	Leu	Tyr	Asp	Ala	Glu	Ile	His	Leu	Thr	Arg	Ser	Thr
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Asn	Ile	Asn	Phe	Tyr	Glu	Ile	Ser	Ser	Asp	Gly	Asn	Val	Pro	Ser	Ile
945					950					955					960
Val	His	Ser	Phe	Glu	Asp	Val	Gly	Pro	Lys	Phe	Ile	Phe	Ser	Leu	Lys
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Val	Thr	Thr	Gly	Ser	Val	Pro	Val	Ser	Met	Ala	Thr	Val	Ile	Ile	His
			980					985					990		
Ile	Pro	Gln	Tyr	Thr	Lys	Glu	Lys	Asn	Pro	Leu	Met	Tyr	Leu	Thr	Gly
		995					1000					1005			
Val	Gln	Thr	Asp	Lys	Ala	Gly	Asp	Ile	Ser	Cys	Asn	Ala	Asp	Ile	Asn
	1010					1015					1020				
Pro	Leu	Lys	Ile	Gly	Gln	Thr	Ser	Ser	Ser	Val	Ser	Phe	Lys	Ser	Glu
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Asn	Phe	Arg	His	Thr	Lys	Glu	Leu	Asn	Cys	Arg	Thr	Ala	Ser	Cys	Ser
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Asn	Val	Thr	Cys	Trp	Leu	Lys	Asp	Val	His	Met	Lys	Gly	Glu	Tyr	Phe
			1060					1065					1070		
Val	Asn	Val	Thr	Thr	Arg	Ile	Trp	Asn	Gly	Thr	Phe	Ala	Ser	Ser	Thr
		1075					1080					1085			
Phe	Gln	Thr	Val	Gln	Leu	Thr	Ala	Ala	Ala	Glu	Ile	Asn	Thr	Tyr	Asn
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Pro	Glu	Ile	Tyr	Val	Ile	Glu	Asp	Asn	Thr	Val	Thr	Ile	Pro	Leu	Met
1105					1110					1115					1120
Ile	Met	Lys	Pro	Asp	Glu	Lys	Ala	Glu	Val	Pro	Thr	Asp	Pro	Glu	Glu
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Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro
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Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys
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Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
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Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
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Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys
1265      1270      1275      1280
Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
1285      1290      1295
Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
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Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
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Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
1330      1335      1340
Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
1345      1350      1355      1360
Leu Ser Leu Ser Pro Gly Lys
1365

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